Agroscope Science No. 6 / September 2014

Suitability of PEF Methodologies and the ENVIFOOD Protocol for the Environmental Product Declaration of Agricultural Products

Authors:
Jens Lansche, Peter Koch, Patrik Mouron, Gérard Gaillard

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Eidgenössisches Departement für
Wirtschaft, Bildung und Forschung WBF
Agroscope

Masthead

Publisher:	Agroscope Institute for Sustainability Sciences ISS Reckenholzstrasse 191 CH-8046 Zurich
Authors:	Jens Lansche, Patrik Mouron, Gérard Gaillard : Agroscope Peter Koch: Koch Consulting
Graphics:	Patrik Mouron, Agroscope
Cover:	Gabriela Brändle, Agroscope
Price:	Free of charge (available as an e-download only: www.agroscope.ch)
Copyright:	2014 Agroscope
ISSN:	2296-729X
ISBN:	978-3-905667-91-2

Commissioned by: Federal Office for the Environment FOEN

Summary

Background

The preparation of a life-cycle assessment involves numerous methodological decisions which may substantially influence the results and conclusions. This is of particular relevance if LCAs are prepared for purposes of comparison, or as part of environmental product declarations. ISO Standard 14025 governs the basic approach to environmental product declarations based on LCA data. This ISO standard requires the definition of product category rules which specify the environmental product declaration for the individual product categories. Through the implementation of various programmes and initiatives, the EU seeks to define the methodology for product LCAs and to lay down product category rules, in order to ensure product declarations that are as fair as possible. Initial examples for the development of this methodology are the PEF (Product Environmental Footprint) methodology of the EU Commission, and the ENVIFOOD Protocol, which is focused on agricultural products. An analysis of the EU methodology is also particularly relevant in the Swiss context, since the Swiss Federal Office for the Environment (FOEN) is taking part in the EU pilot phase as part of the 'Green Economy' action plan. It is in this context that the FOEN commissioned Agroscope to conduct the present study, which aims to analyse the various procedural standards for environmental product declarations.

Aim of the Study

This study investigates the suitability of both the PEF methodology and the ENVIFOOD Protocol for the preparation of environmental product declarations for the food sector. The investigation focused on the following topics: allocation in the case of multi-functional processes; data quality and transparency; the use of credits; and the effect on biodiversity and soil quality. The study also investigates the extent to which intensive and extensive production systems can be differentiated with the PEF methodology. The aim of the study is to derive recommendations for the creation of new product-category rules (PCRs) for foods.

Approach

In a comparative analysis of the literature, the PEF methodology was compared with the following methodological guidelines that are of relevance for product LCAs: the ENVIFOOD Protocol; ISO Standard 14044; the Shonan Global Guidance Principles; and the PEF-CR Guide. A total of 423 topics were compared and documented. A summary of the important differences between the documents was prepared. In addition, methodological inconsistencies were highlighted, requirements with a significant impact on LCA results of agricultural products were identified, and gaps in the methodology were revealed. Based on these findings, an impact analysis was drawn up in which the impacts on the three product groups 'wheat', 'oils' and 'meat' of the various methodological recommendations in terms of allocation procedures and data quality were quantitatively and qualitatively highlighted.

Conclusions

The existing PEF and ENVIFOOD documents make a valuable contribution to the harmonisation of environmental product declarations. In the authors' opinion, however, it is not yet ensured that comparable results will be achieved when different users apply guidelines. In the agriculture and food sector, the manner in which the topics of allocation, data quality, biodiversity and soil quality (multifunctionality), the weighting of impacts, governance and terminology are handled is decisive.

Recommendations

Allocation Recommendations

PEF allows various options for allocation. Different results are achieved for the same product systems, depending on the allocation method chosen. We recommend that the user shall not be given the option of

direct use of substitution and/or credits. If at all, the methodology for calculating the credit or for selecting the substituted product should be documented as additional environmental information. Generally speaking, the user's options should be narrowed down insofar as this is possible and reasonable, *for instance* in order to rule out the risk of the results being influenced by targeted subjective decisions.

Data-Quality Recommendations

This study shows that data quality, and hence the product declaration results, can be significantly influenced by various factors. We recommend that software tools for the environmental product declaration be individually developed at product category level. Such tools define the data requirement, emission models used and background datasets for the user, as well as the calculation algorithms. This yields greater robustness and comparability of the results. The guidelines for these tools should be defined generically on the level of the economic sector. As far as possible, allocation of the product categories should be based on common methodological aspects, and not solely on sales groups. We therefore recommend pursuing the FOEN 'cascade approach' described in the document 'Draft Product-Category Rules for Foods'. With reference to data quality, when product-category rules are drawn up, threshold values should also be stipulated above which the results of two comparable products differ significantly. This threshold value is especially important for communicating the results to the consumer.

Multifunctionality, Biodiversity and Soil-Quality Recommendations

The life-cycle assessment treats multifunctionality as various simultaneously arising functions of agriculture that occur when foodis grown. The present study shows that the two impact categories of biodiversity and soil quality are relevant for the evaluation of agricultural products, but are inadequately dealt with in the PEF methodology. This circumstance can be explained by the fact that only area-related models have existed to date. For agricultural products, these aspects should therefore be depicted by other key figures such as agri-environmental indicators (monitoring) until product-related impact categories have been devised for these areas.

Impact Assessment, Standardisation and Weighting Recommendations

The environmental impacts in agriculture occur on various spatial levels (e.g. local: biodiversity and soil quality; regional: eutrophication; global: global warming potential). Current LCIA methodology only allows inadequate illustration of the spatial differentiation between these environmental impacts. This aspect constitutes a limitation of the life-cycle assessment methodology, and should be eliminated by further research projects and a refining of the impact-assessment methods.

The PEF methodology mentions standardisation as a recommended step in impact assessment, and characterises the weighting as an optional step. We recommend refraining from standardisation and from performing a subjective weighting of impacts when developing product-category rules. This is an internationally established consensus that applies for comparative studies which are published. This principle should not be abandoned here.

Governance Recommendations

Although PEF and ENVIFOOD achieve their aim of limiting the room for manoeuvre that exists with ISO, there are still a few points for which the responsibility is not settled, or at least not settled clearly. We recommend clarifying the points identified by us which leave too much room for manoeuvre in PEF/ ENVIFOOD when developing PCRs. Good governance in the sense of accountability, responsibility, transparency in terms of structures and procedures, and fairness among the actors are necessary condition of credible environmental product declarations.

Terminology Recommendations

In PEF, terminology as commonly used in ISO 14040/44 and in most of the LCA publications to date is in some cases redefined. When creating product-category rules, we recommend agreeing on a common glossary, ideally according to ISO 14040/44. The previous terminology is internationally accepted, and it is possible that these changes in PEF / ENVIFOOD could be repealed.

Disclaimer

These conclusions and recommendations are based on sample observations as part of the present study, and therefore make no claim to completeness. Because the observations are made by way of example only, it is possible that other aspects which might be relevant (e.g. when growing tropical crops) were not considered.